

All in all, then, the *Flowering Plants and Ferns of Arizona* is a splendid contribution to North American botany. One can only regret that in so few of these United States has the flora been so thoroughly studied and so precisely depicted; it seems scarcely necessary to say that the total complexities and coherence of the vegetation of our country cannot be grasped so long as the distribution of a majority of its component elements, within so many of the states, is adequately known.

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### Algae for Undergraduate Students

An Introduction to the Study of Algae. By V. J. Chapman. Pp. 387. The Macmillan Company. 1941. \$3.75.

In the present volume the author has attempted to prepare a short and relatively elementary text on phycology for undergraduate students, hitherto available treatises being too unwieldy and comprehensive for such a purpose. The method of presentation, is in general, the "type-method" in which one or more genera are selected to illustrate the characters of each family. The book is divided into fourteen chapters, including general chapters on classification; reproduction, evolution and fossils; physiology, symbiosis and soil algae. Four chapters are devoted to ecology and distribution, and seven deal with the morphology of the type genera, families, orders and classes. References to important original sources are included at the conclusion of each chapter. The logic of including the Conjugales and Charales of the Chlorophyceae in the same chapter with the Xanthophyceae, Bacillariophyceae, Chrysophyceae, Cryptophyceae and Dinophyceae may be challenged in some quarters.

Some curious inaccuracies pervade the book. For example: the plural of flagellum is given as "flagellae" throughout the text. On page 63, the Chaetophorales are referred to as a "family." On page 72 it is implied that the oogonium of *Coleochaete scutata* possesses a trichogyne. It is stated on page 102 that in *Spirogyra* "meiosis takes place when the zygote germinates." "*Elachista*" is written for "*Elachistea*" on page 145; the single egg of *Desmarestia* is referred to as "ova" in figure 114. On page 30 species of *Oedogonium* with

antheridia and oogonia on different plants are spoken of as "dioecious homothallic" while on page 21 *Phacotus* is described as a "colourless unicell." It is highly doubtful that any motile cells of *Botrydium* have only one flagellum as they are figured in 83b. It is regrettable that Juller's (1937) important work on *Stigeoclonium* is not referred to in the discussion of that genus, nor is it considered in the general discussion of life cycles in the Chlorophyceae.

The last chapters on ecology and geographical distribution of algae represent more or less of an innovation in phycological texts in English, and the author is to be congratulated for having introduced this material as well as a discussion of aspects of algal physiology. Finally, the analysis of the derivation of the generic names of the types described will be a helpful feature to many students.

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## FIELD TRIPS OF THE CLUB

### TRIPS OF APRIL 26 TO BUSHKILL FALLS, PENNSYLVANIA

Thirteen members and guests of the Torrey Botanical Club gathered at Bushkill Falls in the soft haze of an unusual morning that in its warmth seemed like midsummer, but in its fragrance and in the delicate green tracery of the new leaves it was definitely a morning of early spring. Only the red maples in the low wet grounds and the oaks on the drier hillsides faintly echoed the final fanfare of the reds of autumn in the color of their expanding buds.

The group was honored this year by the presence and participation of Dr. Fulford, who contributed much to the study of the rich Bryophyte flora of this area.

Many of the liverworts and mosses have been found and recorded on previous Torrey Club trips to this region (TORREYA 40: 175-177; 41: 136-137). However, each year additional species are collected, and a thorough search would undoubtedly yield very many more. We had never identified *Frullaria Asagrayana*, with its midrib-like ocelli, before; nor had we ever noticed the common *Chiloscyphus rivularis*, which was growing in great abundance in one of the small tributary streams. Not far away, also flourishing,